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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,552	05/08/2007	**Birgit Alberta Deiman**	9310-152	4956

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EXAMINER	
WILDER, CYNTHIA B	
ART UNIT	**PAPER NUMBER**
1637	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/578,552	DEIMAN ET AL.	
	Examiner	Art Unit	
	CYNTHIA B. WILDER	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) *21-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/4/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-20 in the reply filed on filed 12/15/2008 is acknowledged. Accordingly, the claims 21-33 are withdrawn from consideration as being drawn to a non-elected invention.

Drawings

2. The drawings filed 5/8/2006 are accepted by the Examiner.

Claim Objections

3. Claim 1 is objected to because of the following informalities:

(a) The word "fist" in line 9 should be deleted and replaced with --first--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 1-20 are indefinite at the recitation of "an anchor" in the claim 1 because the definition in the specification at page 8 is ambiguous. The specification discloses as page 8 that the "anchor can be any compound which is capable of binding to a second segment of the target RNA sequence". The specification discloses that "the anchor is preferably an optionally modified oligonucleotide or protein". This definition

does not limit the "anchor sequence" to anything specific and it cannot be determined what actually represents an anchor sequences in the context of the claims as currently written. Further, the specification does not provide a limiting definition as to what is encompassed by the recitation of an "*optionally* modified oligonucleotide". Accordingly, it cannot be determined how this limitation limits the meaning of the term "anchor". Clarification is deemed necessary.

(b) Claims 1-20 are indefinite at the recitation of "amplification enhancing sequences" in the claim 1 because the definition of the term in the specification at page 12 and 13 is ambiguous. The specification teaches that "an amplification enhancing sequence" is a non-specific nucleic acid vis-a'-vis the target sequence, but is comprises no promoter, i.e., only a random sequence that generates a loop between the anchor and the hybridizing sequence". The definition is confusing because it cannot be determined if the recitation of "an amplification enhancing sequence" suggests that the primer has a random region that is semi-circled or loop or if the term is intended to mean a non-specific region with no promoter or something completely different. Likewise it cannot be determined how this random, non-specific sequences result in "enhancing" amplification of RNA as the term implies and claimed. Clarification is required.

(c) Claims 1-20 are indefinite in the recitation of "capable of" in the claim 1 because it cannot be determined if the limitation after "capable of" is a property of the "anchor" or separate entity. While minute details are not required in method claims, at least the basic steps must be recited in a positive, active fashion (see *ex parte Erlich*, 3

UsPQ2d1011, p.1011 (Bd. Pat, Applicant. Int.1986). It is suggested changing "capable of binding" to --which binds-- or some other active, positive language as supported by the specification as originally filed.

(d) Claim 1 lacks proper antecedent basis in the step (f) for "the promoter sequence comprised in the first primer" because the prior steps do not recite wherein the first primer comprises a promoter sequence. Rather, the step (a) recites that the primer comprises a "hybridizing sequence" which hybridizes to a segment of the target sequence operably associated with a promoter sequence.

(e) Claim 13 is indefinite and confusing at "wherein the transcription enhancing sequence reads ...SEQ ID NO: 39" because it cannot be determined if Applicant is suggesting that the transcription enhancing sequence recognizes or binds to the sequence of SEQ ID NO: 39 or if Applicant is suggesting that the transcription enhancing sequence "consist of" or "comprise" the sequence of SEQ ID NO: 39. A clear interpretation of Applicant's intent cannot be ascertained.

(f) Claim 14 is indefinite and confusing at "wherein the amplification enhancing sequence reads ...SEQ ID NO: 40" because it cannot be determined if Applicant is suggesting that the amplification enhancing sequence recognizes or binds to the sequence of SEQ ID NO: 40 or if Applicant is suggesting that the amplification enhancing sequence "consist of" or "comprise" the sequence of SEQ ID NO: 40. A clear interpretation of Applicant's intent cannot be ascertained.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Note* For the purpose of application of prior art, given the ambiguity of the claims as noted in rejections under 35 USC 112 second paragraph, the claims are given the broadest, reasonable interpretation by the Examiner.

8. Claims 1-12, 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahl et al (US 20040197802, effective filing date November 21, 2002). Regarding claims 1-7 and 12, Dahl et al teach a method for amplification of a target RNA comprising (a) annealing a first primer to the target RNA, wherein said target sequence is operably associated with a promoter sequence (0085) ;(b) extending said first primer in a reaction catalyzed by a DNA polymerase, forming a first RNA/cDNA hybrid nucleic

acid molecule (0038-0041 and 0076);(c) selectively removing the target RNA sequence of the first RNA/cDNA hybrid nucleic acid molecule forming a first single stranded cDNA sequence (0084);(d) annealing a second primer to the obtained first single stranded cDNA sequence, said second primer comprising a hybridizing sequence which is complementary to and hybridizes to a first segment of the first single stranded cDNA sequence;(e) extending said second primer in a reaction catalyzed by a DNA polymerase to form a first double stranded DNA molecule (0075-0079); and(f) employing the first double stranded DNA molecule of step (e) in the preparation of a plurality of RNA transcripts that are complementary to the target RNA sequence in a reaction catalyzed by a DNA-dependent RNA polymerase with specificity for the promoter sequence comprised in the first primer (0054, 0037-0047, 0075-0081). Dahl teaches wherein the method may comprises anchor sequences associated with the primer, DNA polymerization or reverse transcriptase enhancers and hybridizing portions of the primer that hybridizes to segments of the target nucleic acid (RNA) associated with the promoter (0077, 0080, 0094, 0197-0200 and 0364; see especially Figures 6-8).

Dahl et al do not expressly teach the different length limitations of components of the primers. However, Dahl et al teaches that the primers have an average of 18 to 22 nucleotides in length (page 37). Likewise, Dahl et al teach that the invention is not limited to these reaction conditions or concentrations of reactants (0135).

Applicant's attention is directed to *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), in which it was concluded that:

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

Routine optimization is not considered inventive and no evidence has been presented that the selection of the reaction parameters for amplification including the selection of the length of the different components was other than routine or that the results should be considered unexpected in any way as compared to the closest prior art.

Thus, it would have been prima facie obvious to a practitioner of ordinary skill in the art the time of the claimed invention to perform the RNA amplification reaction as taught by Dahl et al under he same reaction conditions since Dahl et a teach various embodiments of obtaining transcription products for subsequent analysis and further since Dahl expressly teach that the invention reaction conditions are not limited to those disclosed therein. The use of primer sequences having of varying length are within the scope of the teachings of Dahl since such modifications do not negatively alter or modify the RNA amplification method as taught by Dahl et al.

With regards to claims 8-11, Dahl et al teach wherein the reaction components such as the oligonucleotides of the invention may comprise DNA or RNA (0080, 0158, 0189), modified nucleotide bases (0080, 0094, 0276, 0279) PNA (0093, 0094), analyte binding substances comprising an antibody (0032).

With regards to claim 15, Dahl et al teach wherein the promoter sequence is the bacteriophage T7 promoter sequence (0117).

With regards to claim 16, Dahl et al teach wherein the DNA polymerase is the avian myeloblastosis virus (AMV) reverse transcriptase (0079, 0082, 0084 and 0103).

With regards to claims 17-18, Dahl et al et al teaches wherein the target is a biological organisms or material that that is the reason or basis for which a biological assay or diagnostic assay is performed by way of example, Dahl et al teach wherein the target is a virus which is indicative of a present disease or a risk of further disease, such as e.g., HIV (0065). The claims 17-18 merely recite a plethora of conventional nucleic acid manipulation reagents and methodologies, as well as well as routine optimization or reaction components, concentrations, and parameters. Clearly such conventional and trivial modification and optimizations do not contribute towards patentability. Thus, one of ordinary skill in the art would have been motivated to modify the primary references in the manner of the claims to achieve the expected benefits, optimizations and/or expanded applications such as selection of a desired target molecule based on the practitioner's desired results. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to carry out the claimed methods.

With regards to claims 18 and 20, Dahl et al teach wherein the transcription products are detected by one or more sequence specific probes under hybridization conditions (0035, 0289, 0314, 0315 and 0363).

Conclusion

9. No claims are allowed. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CYNTHIA B. WILDER whose

telephone number is (571)272-0791. The examiner can normally be reached on a flexible schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia B. Wilder/
Examiner, Art Unit 1637